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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-24487; Directorate Identifier 2006-NE-13-AD]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, PW4090-3, and PW4098 Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, PW4090-3, and PW4098 turbofan engines, with certain front turbine hub part numbers installed. This proposed AD would require a onetime visual inspection of the anti-rotation slots in the front turbine hub, for a machining nonconformance, and its replacement if the inspection failed. This proposed AD results from a report of a crack found in an anti-rotation slot of a front turbine hub, during overhaul shop inspection. The anti-rotation slot geometry was not machined in conformance with the design drawing. We are proposing this AD to prevent uncontained engine failure, damage to the airplane, and injury to passengers.

DATES: We must receive any comments on this proposed AD by [insert date 60 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: Use one of the following addresses to comment on this proposed AD.

- DOT Docket web site: Go to http://dms.dot.gov and follow the instructions for sending your comments electronically.
- Government-wide rulemaking web site: Go to http://www.regulations.gov and follow the instructions for sending your comments electronically.
- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001.
- Fax: (202) 493-2251.
- Hand Delivery: Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

You can get the service information identified in this proposed AD from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-8770; fax (860) 565-4503.

You may examine the comments on this proposed AD in the AD docket on the Internet at http://dms.dot.gov.

FOR FURTHER INFORMATION CONTACT: Antonio Cancelliere, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7751; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send us any written relevant data, views, or arguments regarding this proposal. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2006-24487; Directorate Identifier 2006-NE-13-AD" in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the proposed AD. We will consider all comments received by the closing date and may amend the proposed AD in light of those comments.

We will post all comments we receive, without change, to http://dms.dot.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this proposed AD. Using the search function of the DOT web site, anyone can find and read the comments in any of our dockets. This includes the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78) or you may visit http://dms.dot.gov.

Examining the AD Docket

You may examine the docket that contains the proposal, any comments received and, any final disposition in person at the DOT Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif

Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the Docket Management Facility receives them.

Discussion

We received a report that during the overhaul shop inspection of a front turbine hub, a crack was found in an anti-rotation slot. Analysis by Pratt & Whitney revealed that the anti-rotation slot geometry was not machined in conformance with the design drawing. This nonconformance consisted of extra fillet radii in the anti-rotation slots. Extra fillet radii can cause local stress concentrations in the anti-rotation slots that lead to thermal mechanical fatigue and cracking. This condition, if not corrected, could result in uncontained engine failure, damage to the airplane, and injury to passengers.

Relevant Service Information

We have reviewed and approved the technical contents of Pratt & Whitney Service Bulletin No. PW4G-112-72-282, Revision 1, dated March 3, 2006. That Service Bulletin identifies the suspect population of front turbine hubs that might be affected by extra fillet radii by part number and serial number, describes procedures for visually inspecting the anti-rotation slots, and illustrates a machining nonconformance.

FAA's Determination and Requirements of the Proposed AD

We have evaluated all pertinent information and identified an unsafe condition that is likely to exist or develop on other products of this same type design. We are proposing this AD, which would require at the next exposure of the rear side of the front turbine hub, a onetime visual inspection for extra fillet radii in the anti-rotation slots, and its replacement if the inspection is failed. The proposed AD would require you to use the service information described previously to perform these actions.

Costs of Compliance

We estimate that this proposed AD would affect 117 Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, PW4090-3, and PW4098 turbofan engines installed on airplanes of U.S. registry. We also estimate that it would take one workhour per engine to perform the proposed actions, and that the average labor rate is $80 per workhour. A replacement front turbine hub would cost about $253,000 for a PW4074, PW4074D, PW4077, PW4077D, or PW4084D engine, and about $283,000 for a PW4090, PW4090-3, or PW4098 engine. To date, the failure rate of inspected front turbine hubs is at ten per cent. Assuming the failed front turbine hubs had 100 percent available life at the time of the inspection, the total cost of the proposed AD for the U.S. operators would be about $3,144,960.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;

2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

3. Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this proposed AD. See the ADDRESSES section for a location to examine the regulatory evaluation.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

The Proposed Amendment

Under the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§39.13 [Amended]

2. The FAA amends §39.13 by adding the following new airworthiness directive:

Pratt & Whitney: Docket No. FAA-2006-24487; Directorate Identifier 2006-NE-13-AD.

Comments Due Date

(a) The Federal Aviation Administration (FAA) must receive comments on this airworthiness directive (AD) action by [insert date 60 days after date of publication in the FEDERAL REGISTER].

Affected ADs

(b) None.

Applicability

(c) This AD applies to Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, PW4090-3, and PW4098 turbofan engines, with front turbine hub part numbers 50L761, 52L701, 55L221, 52L901, 53L121, 55L521, and 53L021, installed. These engines are installed on, but not limited to, Boeing 777 airplanes.

Unsafe Condition

(d) This AD results from a report of a crack found in an anti-rotation slot of a front turbine hub, during overhaul shop inspection. The anti-rotation slot geometry was not machined in conformance with the design drawing. We are issuing this AD to prevent uncontained engine failure, damage to the airplane, and injury to passengers.

Compliance

(e) You are responsible for having the actions required by this AD performed at the next exposure of the rear side of the front turbine hub after the effective date of this AD, unless the actions have already been done.

Onetime Visual Inspection

(f) For front turbine hubs listed by part number and serial number in Table 1, Table 2, and Table 3 of Pratt & Whitney Service Bulletin (SB) No. PW4G-112-72-282, Revision 1, dated March 3, 2006, do the following:

(1) Perform a onetime visual inspection for extra fillet radii in the anti-rotation slots.

(2) Use paragraphs 1.A. through 1.C.(2) of the Accomplishment Instructions of Pratt & Whitney SB No. PW4G-112-72-282, Revision 1, dated March 3, 2006, to do the inspection.

(3) Remove from service any front turbine hub that has extra fillet radii in the anti-rotation slots and install a serviceable front turbine hub.

Prohibition of Front Turbine Hubs That Have Extra Fillet Radii in the Anti-Rotation Slots

(g) After the effective date of this AD, do not install any front turbine hub that has extra fillet radii in the anti-rotation slots, onto any engine.

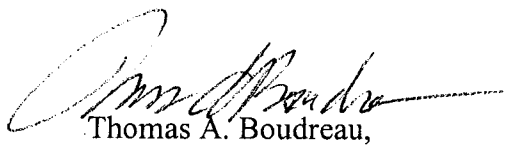
Previous Credit

(h) Previous credit is allowed for front turbine hubs inspected using Pratt & Whitney SB No. PW4G-112-72-282, dated February 27, 2006, or Revision 1, dated March 3, 2006, before the effective date of this AD.

Alternative Methods of Compliance

(i) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Issued in Burlington, Massachusetts, on June 5, 2006.



Thomas A. Boudreau,
Acting Manager, Engine and Propeller Directorate,
Aircraft Certification Service.